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Convenience food products: From bighead carp

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Convenience food products

Popularly known as bighead carp, *Aristichthys nobilis*, is cultivated in freshwater ponds, pens and cages in the Philippines. It is utilized in the preparation of a variety of convenience products or "ready to cook foods." Fish sticks, fish spread, fish flakes (plain and salted), fish powder (smoked and unsalted), smoked fish fillet, pickled smoked carp, ham-cured carp fillets and fish sausage are prepared as follows:

Fish Sticks

- (1) Scale, degut, eviscerate, and wash the fish thoroughly
- (2) Precook the fish under steam for at least 30 min.
- (3) Fillet and flake the fish flesh before mixing with batter.
- (4) Mix the batter and fish at a ratio of 1:1. The batter is prepared as follows:
 - (a) Mix 72.3 g all purpose flour, 3 g salt, 1.7 g baking powder, 21 g fresh eggs, 6 g skim milk powder, and 1.85 g monosodium glutamate.
 - (b) Add 9 g melted hydrogenated vegetable shortening and mix.
 - (c) Chill in a freezer
 - (d) Break all lumps by mixing again.
 - (e) Prepare batter by stirring in water at a ratio of 1:1.5 (water:dry ingredients)
- (5) Mix the ingredients in small baking pans to a height of 1.5 cm.
- (6) Freeze the baking pans overnight or until the mixture hardens.
- (7) Slice the frozen blocks into sticks measuring 7 cm long each.
- (8) Roll over the sticks on bread crumbs.
- (9) Deep-fry the sticks for 1 min.
- (10) Pack the fish sticks in plastic bags and freeze.
- (11) Deep fry the frozen fish sticks for 2 min before serving.

Fish Spread

- (1) Wash the fish thoroughly and fillet.
- (2) Cut the carp fillet into cubes.
- (3) Soak the carp fillet in 1 liter of water with

60 ml of vinegar for 10 min, wash and then drain.

(4) Mix 1 kg cubed carp fillet with 0.33 kg of pork fat, 16 g of corn starch, 15 g of salt, 4 g of monosodium glutamate, 0.50 g (or 4 g if hot spread is preferred) of black pepper, 35 ml of soy sauce, 60 ml of vinegar, and 200 ml of water.

(5) Cook the mixture using a pressure cooker at 15 psi for 1 hr.

(6) Cook and pass through a meat grinder to produce a spread-like consistency.

(7) Fill into 307 x 201.25 cans and exhaust at 82°C.

(8) Seal the cans and process at 15 psi for 1 hr.

(9) Cool, label and store.

Fish Flakes (Salted)

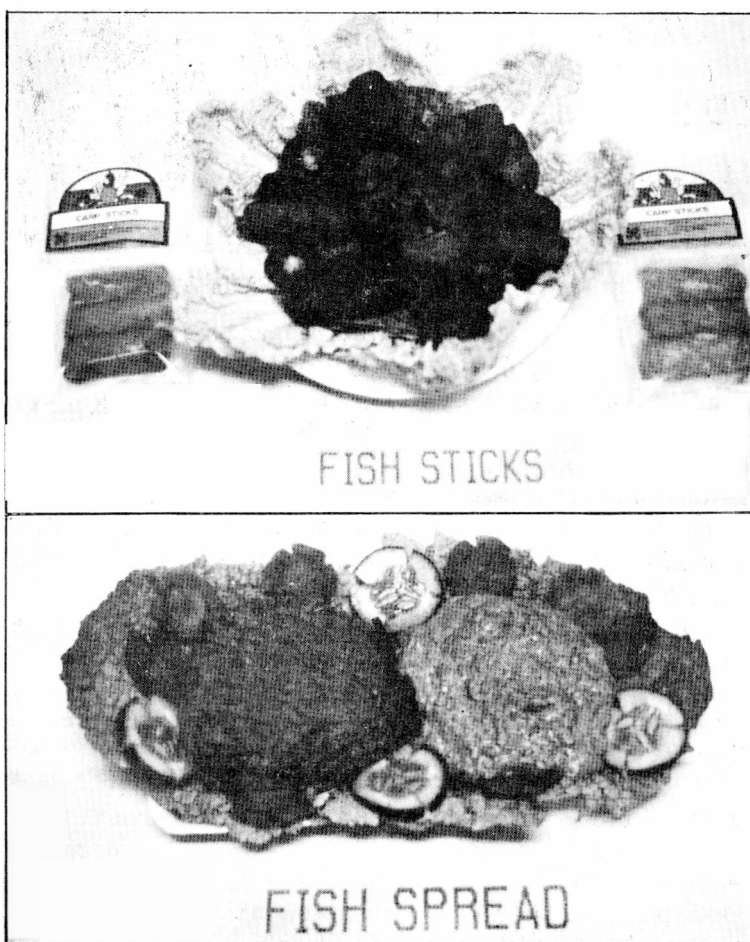
- (1) Scale, eviscerate, degut, and cut the fish into portions prior to use.
- (2) Immerse the fish in brine at 1:3 salt to water ratio for 1 hr.
- (3) Steam the samples for 10-15 min and then flake.
- (4) Dry the samples at 55°C for 3-4 hrs.
- (5) After cooling, thinly flake the samples using a blender.

Fish Flakes (Plain)

- (1) Wash the fish and fillet.
- (2) Precook the fillet in steam for 1.5 min and then flake.
- (3) Smoke the fillet for about 1 hr.
- (4) Fill the fish fillet into 307x 201.25 cans and pack with vegetable oil or 2% brine solution.
- (5) Exhaust the cans at 82°C.
- (6) Seal the cans and process at 1.5 psi for 1 hr.
- (7) Cool, label and store.

Smoked fish Fillet (Plain)

- (1) Clean and eviscerate the fish immediately after procurement.
- (2) Wash the fish thoroughly and slice crosswise, pack in polyethylene bags and store immediately in the freezer.
- (3) Partially thaw the fish before filleting.



(4) Debone the fish by cutting along the backbone. Do not remove the hairbones embedded in the flesh to preserve the integrity of the fillet structure.

(5) Cut the fillets into 6-inch slabs and soak in 5% brine solution to remove excess blood and slime.

(6) Drain the fillets for 30 min before curing. One kilo of bighead carp fillets is cured in 500 ml water. Salt is added to taste.

(7) Cure the fillets overnight in a refrigerator.

(8) After curing, wash the fillets thoroughly to remove excess salt and drain for 30 min.

(9) Dry the fillet at 55°C for 2 hr and smoke for 2 to 3 hr or until golden brown.

(10) Cook the samples at room temperature, pack in polyethylene bags and then store in the refrigerator.

Pickled Smoked Carp

(1) Clean and eviscerate the fish immediately after procurement.

(2) Wash the fish thoroughly, slice cross-wise, pack in polyethylene bags, and store immediately in the freezer.

(3) Partially thaw the fish before filleting.

(4) Debone the fish by cutting along the backbone. Do not remove the hairbones embedded in the flesh to preserve the integrity of the fillet structure.

(5) Cut the fillets into 6-inch slabs and soak in 5% brine solution to remove excess blood and slime.

(6) Drain the fillets for 30 min before curing. A kilo of bighead carp fillet is cured in 8 g sugar, 2 g pepper, 5 g garlic, 2 g MSG, and 500 ml vinegar. Salt is added to taste.

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(7) Cure the fillets overnight in a refrigerator.

(8) After curing, wash the fillets thoroughly to remove excess salt and drain for 30 min.

(9) Dry the fillet at 55°C for 2 hr and smoke for 2 to 3 hr or until golden brown.

(10) Cook the samples at room temperature, pack in polyethylene bags, and then store in the refrigerator.

Ham-Cured Fillets

(1) Clean and eviscerate the fish immediately after procurement.

(2) Wash the fish thoroughly, slice cross-wise, pack in polyethylene bags, and store immediately in the freezer.

(3) Partially thaw the fish before filleting.

(4) Debone the fish by cutting along the backbone. Do not remove the hairbones embedded in the flesh to preserve the integrity of the fillet structure.

(5) Cut the fillet into 6-inch slabs and soak in 5% brine solution to remove excess blood and slime.

(6) Drain the fillet for 30 min before curing. A kilo bighead carp fillet is cured with 11 g sugar, 9 g prague powder, and 400 g of water. Salt is added to taste.

(7) The fillets are cured overnight in a refrigerator.

(8) After curing, wash the fillets thoroughly to remove excess salt and drain for 30 min.

(9) Dry the fillet at 55°C for 2 hr and smoke for 2 to 3 hr or until golden brown.

Fish Sausage

(1) Cut the fish fillet across the grain to remove all the hairbones.

(2) Mix the fish and the cubed back fat at a ratio of 70:30 and pass through a meat grinder.

(3) Mix the fish-fat mixture with 22 g of salt, 1.5 g of garlic, 7 g of black pepper, 4 g of MSG, 4 g of prague powder, 21 ml of vinegar, and 1 ml of accord.

(4) Cure the mixture for 48 hr and stuff them into polyethylene bags.

Qualities of new Products

The flavor, aroma and eating qualities of developed products from bighead carp are generally acceptable.

Fish sticks and fish spread prepared from bighead carp are generally acceptable in terms of sensory qualities. The fishy aroma and flavor of the products are masked by preparing comminuted products and using proper formulation.

Dehydrated and smoked products, namely, unsalted fish powder, salted fish flakes and smoked fish powder from bighead carp are likewise acceptable.

Smoked products from bighead carp, namely, plain smoked, pickled and ham-cured fillets were found to be highly acceptable.

Source: PCAMRD. 1991. **Processing of Bighead Carp into Food Products**. Dept. of Science and Technology, Los Baños, Laguna.

Fish leather...(from page 17)

handbags and so on; and two plated leather where the scales are lacquered and laid flat. This leather has a firmer texture for increased durability and is used in handbags, wallets, executive briefcases and corporate gifts. Whatever way it is used, fish leather products look great.

To start a reasonable size fish skin tannery would require at least A\$500 000 capital and a strong supply of raw materials. Which is why most tanneries diversify and simultaneously process other exotic skins such as eel, shark, stingray, sea snake, crocodile, emu, ostrich,

cane toads, frog and whatever else is available in quantity.

Industry forecast

The future for the marine tanning industry is optimistic. Environmental and animal rights organizations will no doubt approve of fish skin because it brings no harm to nature or the environment. Everyone can own exotic leather goods which is otherwise normally discarded by the fishing industry.

Source: Terry Selwood, "Barramundi skin," **INFOFISH International**, January-February 1992.